Atty. Dkt. No. 029319-0201

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Jay A. Haines

Title: INFRARED REFLECTIVE WALL PAINT

Appl. No.: 10/811,065

Filing Date: 3/26/2004

Examiner: Markham, Wesley D.

Art Unit: 1762

Conf. No.: 8080

CERTIFICATE OF MAILING
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date below.

(Printed Name)

(Signature)

(Date of Deposit)

DECLARATION OF MARK A. GIERKE UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Mark A. Gierke, hereby declare as follows:

1. I am an employee with Textured Coatings of America, Inc., 2422 E. 15th Street, Panama City, FL 42305, where I am Director of Technology.

2. I hold a B.S. degree from Elmhurst College in chemistry, conferred in 1980.

3. I have been employed in my current capacity for 1-1/2 years. Previously, I held the position of Vice President, Technology with Harris Specialty Chemicals, Inc. I have held positions in the paint and coatings industry with other companies, most recently with Degussa Corporation where I was Director of Technology. I am an expert in the field of paint technology by virtue of my education, current position, and work experience. This experience includes a total of 30 years in the paint industry at the chemist, Vice President, and Director levels.

4. I have read the specification and claims of the above-referenced application. I have read the Office Action mailed February 7, 2006, for the above-reference application. I have read the specification and claims for U.S. Patent 6,454,848, filed December 20, 2000, issued September 24, 2002 (i.e., the Sliwinski patent). I have read the specification and claims for U.S. Patent 5,952,143, filed February 23, 1998, issued October 5, 1999 (i.e., the Krauthauser patent). I have read the specification and claims for U.S. Patent 6,521,038, filed November 28, 2001, issued February 18, 2003 (i.e., the Yanagimoto patent).

5. I understand that the Examiner has alleged that the term "dark" in Claim 16 is a relative term which makes the claim indefinite. However, the term "dark" as described in the above-referenced application, at for example paragraph **[0029]**, *viz*,

> **[0029]** ... Preferably, the present wall paints are of a dark color (i.e. of a shade tending toward black in comparison with other shades), such as black, blue, green, yellow, red, or any combination thereof. (emphasis added)

would be readily understood by one of ordinary skill in the painting art to mean of a shade tending toward black. This is consistent with the dictionary definition of "dark" as found, for example, in Webster's Ninth New Collegiate Dictionary, 1991, Merriam-Webster, Inc. Springfield, MA.:

> **dark** ... **1 a** devoid or partially devoid of light: not receiving, reflecting, transmitting, or radiating light **b:** transmitting only a portion of light **2 a:** wholly or partially black **b** *of a color*: of low or very low lightness ... (emphasis added)

Thus, to one of skill in the art, the term "dark" has a specific meaning in the painting arts and in the above-referenced application, which refers to the presence of at least some black in a paint.

6. The term "wall paint" as used in the above-referenced application, at for example paragraph **[0021]**, would be readily understood by one of ordinary skill in the painting art to mean a usually pigment containing liquid resin and solvent (aqueous or non-aqueous) composition used for coating, applying, layering, or covering vertical walls.

7. The term "heat reflective" as defined in the above-referenced application, at for example paragraphs **[0023]-[0024]**, would be readily understood by one of ordinary skill in the art to refer

to an ability to reflect solar light from a surface. "Heat reflective" would also be understood to embrace emissivity, which is the ability to radiate or emit energy in the form of longwave infrared radiation, as in this dictionary definition:

> **emissivity** [THERMO] The ratio of the radiation emitted by a surface to the radiation emitted by a perfect blackbody radiator at the same temperature.

(McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, 2003, New York). Thus it is understood that heat, in the form of infrared radiation, is reflected by a heat reflective coating.

8. The term "pigment" as used in the painting art is understood to have the following definition:

> **pigment** [MATER] A solid that reflects light of certain wavelengths while absorbing light of other wavelengths, without producing appreciable luminescence; used to impart color to other materials. (emphasis added)

(McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, 2003, New York). One of skill in the art would thus recognize that pigments may reflect wavelengths selectively. That is, a pigment that reflected infrared radiation but selectively absorbed/reflected visible radiation would appear to the human eye as colored but would not transmit heat arising from the reflected infrared radiation.

9. The term "metal oxide" in the context of a pigment in the above-referenced application and as used commonly in the painting arts would be readily understood to refer to oxygen containing species of various metals, as such aluminum, antimony, bismuth, boron, chrome, cobalt, gallium, indium, iron, lanthanum, lithium, magnesium, manganese, molybdenum, neodymium, nickel, niobium, silicon, tin, titanium, vanadium, or zinc, as discussed in paragraph **[0026]** of the above-referenced application.

10. The phrase "corundum-hematite crystal lattice structure," as defined in the above-referenced application at paragraph **[0027]**, would be understood to refer to a discrete crystalline

structure exhibited by certain metal oxide pigments, such as is found in metal oxide pigments disclosed in the Sliwinski patent.

11. I use the term "heat reflective metal oxide pigment comprising a corundum-hematite crystal lattice structure" in this Declaration to refer to a heat reflective metal oxide pigment which comprises a solid solution having a corundum-hematite crystal lattice structure. This definition is consistent with the pigments as claimed in the above-referenced application (i.e., Claims 1-2).

12. Wall paints of the claimed invention, as disclosed for example in paragraph **[0018]**, contain at least one heat reflective metal oxide pigment comprising a solid solution having a corundum-hematite crystal lattice structure. An important concept of the present invention, as stated in paragraph **[0036]**, is that the heat reflective metal oxide pigment comprising a solid solution having a corundum-hematite crystal lattice structure must be capable of reflecting light of infrared wavelengths. Thus, that amount of heat, which would otherwise enter a building due to infrared radiation absorbance and subsequent conduction into the building, does not enter a building painted with a composition of the present invention because this infrared radiation is reflected. See paragraph **[0018]**. However, depending on the visible light absorption of the composition, the coating may appear colored to the human eye (see paragraph **[0029]**).

13. With respect to the instant invention, the heat reflective nature of the paint recited in the claims is provided by the colored heat reflective metal oxide pigment comprising a solid solution having a corundum-hematite crystal lattice structure of the paint. See paragraphs **[0029]-[0030]** of the above-referenced application. Thus, less infrared heat enters a structure coated with paint of the present invention than would enter in the absence of these reflecting pigments, and cooling costs are therefore reduced.

14. I have reviewed the Sliwinski patent in view of the Examiner's rejection. In my opinion, the Sliwinski patent provides solid solutions which include a host component having a corundum-hematite crystalline structure which contains one or more metal guest components (col. 2, lines 25-39). These compounds are useful as inorganic color pigments (Sliwinski, Col. 1,

lines 10-16). The Examples provided in the Sliwinski patent deal exclusively with the preparation of various metal pigments (Col. 5, line 39 through Col. 9, line 51). The Sliwinski patent does not provide any detailed teaching beyond the disclosed pigments, for example, Sliwinski does not describe any actual paint compositions, nor does it provide instructions regarding how to formulate or test such paints.

15. The pigments described in the Krauthauser reference are selected such that they transmit (i.e., do not reflect) infrared radiation (Krauthauser, Col. 2, lines 55-60). Because the Krauthauser pigments do not reflect infrared radiation, the heat radiation reflecting property of the Krauthauser coating is caused by the required silicic acid component (Krauthauser, Col. 4, lines 28-34).. Therefore, the Krauthauser coatings require two components, a colored pigment and a heat radiation reflecting element (specifically, silicic acid).

16. Thus, it is my opinion that it would be readily understood by one of ordinary skill in the art that the coatings of Krauthauser operate differently than the paints of the claimed invention because the pigments of the claimed invention themselves have the heat reflecting properties whereas the Krauthauser coatings require a infrared-transparent colored pigment and a heat reflecting element. Because the Krauthauser pigments do not reflect infrared energy, one of skill in the painting art would not look to these pigments to prepare paints according to the claimed invention.

17. The "composite pigment" of Yanagimoto contains a white pigment coated with a near-infrared non-absorbing colorant (Yanagimoto, Col. 2, lines 13-17). The white pigment can be, for example, titanium dioxide or zinc white (Yanagimoto, Col. 4, lines 44-47) both of which are known in the art to reflect solar radiation. Thus, in Yanagimoto, the white pigment (which is required) is responsible for the majority of the reflection of the infrared radiation. Because the heat reflecting pigments of Yanagimoto are white, an additional infrared non-absorbing colorant must be added to the Yanagimoto composite pigments to impart color.

18. Therefore one of ordinary skill in the art would understand that using the pigments of the claimed invention, which reflect a large portion of solar radiation, would defeat the mechanism

of the Yanagimoto composite pigments, which rely on the required white pigment to reflect the largest fraction of the solar radiation (Yanagimoto, Col. 4, lines 4-43).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information or belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the captioned patent application or any patent issued therefrom.

Respectfully submitted,

Date MAY 1, 2006

Mark A. Gierke

Mark A. Gierke

Exhibit 2: Declaration of Jay A. Haines under 37 C.F.R. §§ 1.131-1.132